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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/842,797	04/27/2001	Koichiro Tanaka	12732-034001	7383
26171	7590	06/13/2006	EXAMINER	
FISH & RICHARDSON P.C. P.O. BOX 1022 MINNEAPOLIS, MN 55440-1022				GUERRERO, MARIA F
ART UNIT		PAPER NUMBER		
		2822		

DATE MAILED: 06/13/2006

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/842,797
Filing Date: April 27, 2001
Appellant(s): TANAKA, KOICHIRO

John F. Hayden
For Appellant

EXAMINER'S ANSWER

MAILED
JUN 13 2006
GROUP 2800

This is in response to the appeal brief filed 3/28/06 appealing from the Office action
mailed 6/10/05.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,365,080 YAMAZAKI ET AL. 11-1994

G. Andra et al. "Laser induced crystallization: A method for preparing silicon film solar cells" IEEE, (Sept. 30-Oct. 3, 1997), pp.639-642

The admitted prior art, pages 7-10, Figures 4A-4C, 27A-27C.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-18 and 25-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. (U.S. 5,365,080) in view of G. Andra et al. and Applicant admitted prior art.

Yamazaki et al. teaches forming a first crystalline region by irradiating laser beam to an amorphous semiconductor film while relatively moving the laser beam with respect to the amorphous semiconductor film and after forming the first crystalline region forming a second by irradiating laser beam to an amorphous semiconductor film while relatively moving the laser beam with respect to the amorphous semiconductor film (Fig. 4(A)-4(E), col. 2, lines 20-35, col. 4, lines 50-68). Yamazaki et al. shows the second crystalline region including a portion of the first crystalline region and the second crystalline region overlaps with the first crystalline region (Fig. 4(B)-4E, col. 4, lines 65-68, col. 5, lines 1-5). Yamazaki et al. teaches employing a YAG laser or argon laser to crystallize the semiconductor film (col. 5, lines 1-5, col. 6, lines 1-10). In addition,

Yamazaki et al. teaches the semiconductor device being used in a liquid crystal display device and other devices (col. 1, lines 9-13).

Yamazaki et al. is silent about moving the laser on a second direction parallel to the first direction on the upper part of the layer with an overlapping region. However, Applicant admitted prior art shows the step of moving the laser on a second direction parallel to the first direction on the upper part of the layer with an overlapping region as being part of the conventional laser crystallization process (Fig. 4A-4C, 27A-27C, pages 7-10).

Yamazaki et al. is silent about the wavelength of the laser beam. However, G. Andra et al. shows employing the argon laser with the wavelength of 514 nm and employing an Nd: YAG laser pulse with the wavelength of 532 nm (pages 639-640).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Yamazaki et al. reference by specifying moving the laser on a second direction parallel to the first direction on the upper part of the layer with an overlapping region as taught by Applicant admitted prior art and the wavelength as taught G. Andra et al. in order to control the size of the grains in the crystallized layer (G. Andra et al., page 639.)

Claims 19-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. (U.S. 5,365,080), G. Andra et al. and Applicant admitted prior art as applied to claims 1-18 and 25-30 above, and further in view of Yamazaki et al. (U.S. 5,893,730).

Regarding claims 19-24, the combination of Yamazaki et al., G. Andra et al., and Applicant admitted prior art does not specifically show the semiconductor device as being part of a video camera, a personal computer etc. However, Yamazaki et al. shows that these devices utilize semiconductor devices (Fig. 16A-16F, col. 24, lines 58-67, col. 25, lines 1-47).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the combination of Yamazaki et al., G. Andra et al., and Applicant admitted prior art by specifying the use of the semiconductor device as being part of a video camera, a personal computer etc. as taught Yamazaki et al. '730 because these devices utilize the display device taught by Yamazaki et al. '080 (Yamazaki et al. '730, col. 24, lines 58-67).

(10) Response to Argument

(1) Appellant requested reversal of the rejections of claim 1 and its dependent claims because neither Yamazaki (US 5,365,080), Andra, the admitted prior art, nor any proper combination of the three describes or suggests forming two crystalline regions using the same laser beam. Appellant argued that Yamazaki describes forming a first crystalline region by irradiating with a first laser beam and forming a second crystalline region by irradiating with a second laser beam having a longer wavelength than the first laser beam. The examiner agrees that Yamazaki describes employing a second laser radiation or other similar intense radiation having a wavelength longer than the first laser radiation. However, the rejected claims do not require that the laser beam should

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have the same wavelength. The examiner disagrees that Yamazaki does not suggest forming the two crystalline regions using the same laser beam. Yamazaki shows forming two crystalline regions using the same laser beam with different pulse durations (Fig. 4(B)-4E, col. 4, lines 65-68, col. 5, lines 1-5, col. 6, lines 1-10).

(2) Appellant argues that the passage of Yamazaki at col. 4, line 65 to col. 5, line 5, describes an example in which an excimer laser is used to crystallize a first region and a YAG laser is used to crystallize a second region. In response to this argument, the examiner previously pointed out this passage of because Yamazaki suggested that the two crystalline regions be formed using the same laser beam (YAG laser) (col. 4, lines 50-68, col. 5, lines 1-5).

(3) Appellant argues that neither Yamazaki '080, Andra, the admitted prior art, nor any proper combination of the three describes or suggest forming partially overlapping regions on the upper surface of the semiconductor film. Appellant argues that Yamazaki is silent as to overlap of different regions in a direction in which a laser beam moves. Appellant argues that the admitted prior art shows the first region overlaps with all of the second region along the first region, rather than only a portion of the second region along the first direction. Appellant argues that the limitation "along the first region" has been ignored by the rejection. It is the examiner's position that Yamazaki et al. teaches forming a first crystalline region by irradiating laser beam to an amorphous semiconductor film while relatively moving the laser beam with respect to the amorphous semiconductor film and after forming the first crystalline region forming a second by irradiating laser beam to an amorphous semiconductor film while relatively

moving the laser beam with respect to the amorphous semiconductor film (Fig. 4(A)-4(E), col. 2, lines 20-35, col. 4, lines 50-68). Yamazaki et al. shows the second crystalline region including a portion of the first crystalline region and the second crystalline region overlaps with the first crystalline region (Fig. 4(B)-4E, col. 4, lines 65-68, col. 5, lines 1-5). In addition, Applicant admitted prior art is cited as evidence to show that during a conventional laser crystallizing process, the first region of the upper surface of the semiconductor film overlaps with only a portion of the second region of the upper surface along the first direction (Fig. 4A-4C, 27A-27C, pages 7-10). Therefore, a person of ordinary skill in the art would recognize that in fact the second region would extend beyond (overlap) one end of the first region in a first direction in order to ensure that the regions are completely crystallized.

(4) In response to appellant's argument that neither G. Andra nor the admitted prior art would have provided the motivation to modify Yamazaki '080 to use the same laser beam for both regions, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Yamazaki suggested that the two crystalline regions be formed using the same laser beam (YAG laser) (col. 4, lines 50-68, col. 5, lines 1-5). G Andra et al. and Applicant admitted prior art are presented as evidence to show that it would have been obvious to

a person of ordinary skill in the art at the time of the invention to modify Yamazaki et al. reference by specifying moving the laser on a second direction parallel to the first direction on the upper part of the layer with an overlapping region as taught by Applicant admitted prior art and the wavelength as taught G. Andra et al. in order to control the size of the grains in the crystallized layer (G. Andra et al., page 639.)

(5) In response to appellant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

(6) In addition, "the use of patents as references is not limited to what the patentees describe as their own inventions or to the problems with which they are concerned. They are part of the literature of the art, relevant for all they contain." *In re Heck*, 699 F.2d 1331, 1332-33, 216 USPQ 1038, 1039 (Fed. Cir. 1983) (quoting *In re Lemelson*, 397 F.2d 1006, 1009, 158 USPQ 275, 277 (CCPA 1968)). A reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill the art, including nonpreferred embodiments. *Merck & Co. v. Biocraft Laboratories*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989). See also *Celeritas Technologies Ltd. v. Rockwell International Corp.*, 150 F.3d 1354, 1361, 47 USPQ2d 1516, 1522-23 (Fed. Cir. 1998). Disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. *In re Susi*, 440 F.2d 442, 169 USPQ 423 (CCPA 1971).

The appellant argues that for the reasons set forth above, the rejection should be reverse. The examiner, for reasons recited above, respectfully disagrees.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Maria F. Guerrero
MARIA F. GUERRERO
PRIMARY EXAMINER

June 6, 2006

Conferees:

Zandra Smith *Ricky Mack*
Zandra Smith Ricky MACK